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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,750	09/25/2003	Chad A. Cobbley	MICS:0078-1 (FLE/MAN) (0)	1056
52142 7590 02/07/2008 FLETCHER YODER (MICRON TECHNOLOGY, INC.) P.O. BOX 692289 HOUSTON, TX 77269-2289				
EXAMINER				
MITCHELL, JAMES M				
ART UNIT		PAPER NUMBER		
2813				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/672,750

Applicant(s)

COBBLEY ET AL.

Examiner

JAMES M. MITCHELL

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35, 37-39 and 68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35, 37-39 and 68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Appeal Decision filed August 22, 2007. The Board affirmed Examiner's rejection of claims 45, 47-49, 63, 65-67, 69 and 70, but reversed Examiner's rejection of claims 35, 37-39 and 68. Prosecution is reopened for the limited purpose of addressing claims 35, 37-39 and 68.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 35 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Pai'728 et al. (U.S. 6,387,728).

4. Pai'728 (Fig. 4-6) discloses:

(cl. 35) An integrated circuit comprising: a stack comprising at least two semiconductor die (Fig. 6), each of the semiconductor die (110, 130) being coupled together by a first adhesive (132), the first adhesive being curable at a first temperature; and a substrate (150) coupled to one of the at least two semiconductor die by a second adhesive (112), the second adhesive being curable at a second temperature lower than the first temperature (Col 2, Lines 47-57); wherein each die in the stack of at least two

semiconductor die is functional¹ (e.g. use of wire electrically connected; Col. 3, Line 25-33);

(cl. 37) the topside surface area of one of the at least two semiconductor die (e.g. 130) is less than the topside surface area of a second of the at least two semiconductor die (e.g. 110).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pai'728 (U.S. 6,387,728).

7. Pai'728 discloses the elements of paragraph 4 of this office action, but does not explicitly disclose wherein each die in the die is successively thinner than the previous die.

8. However applicant has not disclosed that his selected thicknesses are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. As such, it would have been obvious to one of ordinary skill in the art to choose these dimensions, since it has been held that mere dimensional limitations are prima facie

¹ Patents presumed valid which includes operability

obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

9. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Pai*'728 (U.S. 6,387,728) in view of *Huang* (US006753206B2).

10. *Pai*'728 discloses the elements of claim 4 of this office action except for the stack being a shingle stack (defined in the instant specification where the die centers are not aligned) and at least one die comprises a memory die/ chip.

11. *Huang* teaches a shingle stack (Fig. 2, 5) and use of a memory chip/ die.

12. It would have been obvious to one of ordinary skill in the art to modify the stack of *Pai*'728 by to form a shingle stack in order to accommodate package chips of various sizes and provide storage capacity as taught by *Huang* (Col. 2, Lines 34-39 & 45-47).

13. Claims 38, 39 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Pai*'728 (U.S. 6,387,728) in view of *Eskildsen* (U.S. 2003/0102567)

14. *Pai*'728 discloses the elements of claim 4 of this office action except for the stack being a shingle stack (defined in the instant specification where the die centers

are not aligned), use of memory chips or wherein each die in the die stack is successively thinner than the previous die.

15. However, Eskildsen (Fig. 5) teaches use of a shingle stack (e.g. center of chips not aligned) and use of memory chips (Par. 0031) with logic (Par. 0031) wherein each die is successively thinner than the previous die (e.g. different functions have different thicknesses).

16. It would have been obvious to one of ordinary skill in the art to modify the stack of Pai'728 such the chips centers are offset/ not aligned in order to stack the die without regard to die/chip/dice size and to form the chips of Pai to include memory and logic whereby the dies have different thicknesses in order to form smaller electronic devices like notebook computers as taught by Eskildsen (Title; Par. 0002).

17. Moreover, with respect to having a shingle stack, arranging chips to the left or right of one another would not change the MCM operation. As such, the claimed rearrangement would have been obvious to one of ordinary skill in the art as a matter of design choice. See e.g. In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice); In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device).

18. In addition, applicant has not disclosed that his selected thicknesses are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

As such, it would have been obvious to one of ordinary skill in the art to choose these dimensions, since it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Response to Arguments

19. Applicant's arguments with respect to reversed claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art discloses in: *Pai* (U.S. 6,503,776) high operational speed MCM/die stack containing memory; *Hackey* (U.S. 6,627,477) memory and logic dies having different thicknesses.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. MITCHELL whose telephone number is (571)272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ex. Mitchell
January 29, 2008
/James M. Mitchell/
Examiner, Art Unit 2813

/Carl Whitehead Jr./

Supervisory Patent Examiner, Art Unit 2813